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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,473	04/03/2001	Michael V. Glazov	99-2051	2114

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EXAMINER

NGUYEN, CAM N

ART UNIT PAPER NUMBER

1754

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/825,473

Applicant(s)

Glazov et al.

Examiner

Cam Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 3, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above, claim(s) 14-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claims are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Apr 3, 2001 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s).
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3 6) ☐ Other:

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DETAILED ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, drawn to a method of preparing thermally stable transitional alumina, classified in class 423, subclass 625+.
 - II. Claims 14-~~16~~, drawn to a catalytic support alumina, classified in class 502, subclass 303+.

The inventions are distinct, each from the other because:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process, such as by impregnation technique or spray pyrolysis technique.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, and have acquired a separate status in the art as shown by their different classification, and because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with *Mr. Gary P. Topolosky* on *June 26, 2002* a provisional election was made with traverse to prosecute the invention of Group I, claims 1-13.

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Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Claim Rejections - 35 USC § 112 (Second Paragraph)

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 6-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. Claim 6 recites the limitation "the aluminum solution" in step 6(b), line 1. There is insufficient antecedent basis for this limitation in the claim. It appears that the solution provided in step 6(a) contains both aluminum and lanthanum, but the solution in step 6(b) only refers to "aluminum".

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B. In step 6(b), the phrase “a hydroxyl group anion-exchanger” does not particularly point out what material is being claimed. It appears that this would include materials, such as organic anion source containing hydroxyl group or polymer anion material, which is not applicants intend.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamano et al., “hereinafter Hamano”, (U.S Pat. 5,155,085) taken together with Warthen et al., “hereinafter Warthen”, (U.S Pat. 3,853,789) and in combination with Inui et al., “hereinafter Inui”, (U.S Pat. 5,573,582).

Hamano discloses a process of preparing transition alumina by forming a solution by dissolving aluminum sulfate and a lanthanum sulfate in water at a temperature of 90°C for 1 hour with stirring; heating the solution to evaporate the water; then further heating to dryness at a temperature of 180°C for 10 hours; and finally calcining and thermally decomposing at a temperature of 1000°C for 15 hours to produce transition alumina having a γ -alumina phase (see col. 8, Example 1, ln 44-63).

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Regarding step 1(a) & step 6(a), the claims are met since Hamano teaches to dissolve aluminum sulfate and lanthanum sulfate in water (see col. 8, Example 1, ln 44-63), which provides for an aqueous solution containing aluminum sulfate and lanthanum sulfate.

Hamano does not disclose step 1(b) & step 6(b), which recite “treating the aluminum solution with a hydroxyl group anion-exchanger to produce a composition comprising aluminum hydroxide”. However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have treated the aqueous solution containing aluminum and lanthanum of Hamano with an alkaline reagent in order to form an aluminum hydroxide and lanthanum hydroxide precipitation having a pH value in the range of between 6 to 11, preferably in the range of between 7.5 and 8.5, with a reasonable success of achieving the transition alumina powders because it is known and taught by Warthen to do so to obtain an improved alumina product having high mechanical strength and attrition resistance, and high degree of macroporosity which is useful as adsorbents or catalyst carriers (see Warthen at col. 2, ln 18-26, col. 1, ln 6-8, & ln 48-52).

Hamano does not disclose step 1(c) & 6(c), which recite “freeze-drying the aluminum hydroxide composition to produce a aluminum hydroxide powder”. It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated this step into the process of Hamano in order to obtain fine-particulate metal hydroxide comprising aluminum hydroxide because Inui fairly discloses freeze-drying technique is

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a suitable drying technique for producing fine-particulate aluminum hydroxide (see Inui at col. 8, ln 7, ln 20-41, col. 2, ln 16-47).

With respect to step 1(d) & 6(d), Inui discloses calcining the aluminum hydroxide at a temperature of about 500°C to about 1500°C to obtain fine-particulate metal oxide comprising γ -phase containing aluminum oxide (or alumina) as a major component (see Inui at col. 8, ln 21-29). The fine-particulate also contains at least one other component selected from a group including La (see Inui at col. 8, ln 30-34). The calcining step disclosed by Inui provides for the “dehydrating” step set forth in the instant claims, thus meet the claims.

Regarding claims 2, 7, & 8, the claims are met by the reference since Hamano discloses aluminum nitrate and lanthanum nitrate are also suitable as aluminum salt and lanthanide series element salt other than the aluminum and lanthanum sulfate (see Hamano at col. 4, ln 31 & ln 41).

Regarding claims 3 & 9-11, Hamano does not disclose the claimed aluminum nitrate amount, aluminum to lanthanum molar ratios, and concentration of lanthanum oxide in the γ -alumina. It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have optimized the aluminum and lanthanum concentrations in such process in order to obtain a more effective alumina material, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Regarding claims 4 & 12, the claimed pH range is met by the teaching of the reference because the claimed pH range is overlapping with the disclosed pH range (see Warthen at col. 2, ln 18-26).

With respect to the claimed calcination temperature range in claims 5 & 13, it is met by the teaching of the reference since the claimed range falls within the disclosed temperature range (see Inui at col. 8, ln 21-29).

With respect to the cooling step in claims 5 & 13, Inui does not disclose cooling of the alumina product. However, it is *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated the cooling step in such process in view of the advantage that cooling of a product to facilitate subsequent handling of the product material. This is conventional and known in the metal oxide production art.

Citations

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ushikubo et al. (US Pat. 5,422,328), Hori et al. (US Pat. 4,746,638), Pepper (US Pat. 4,752,459), Kurita et al. (US Pat. 4,665,040), Inoue et al. (US Pat. 4,508,849), Bouge et al. (US Pat. 4,315,839), Spooner et al. (US Pat. 4,868,150), Jacques et al. (US Pat. 4,514,511), & Fleming et al. (US Pat. 4,797,271) are cited for related art.

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Conclusion

11. Claims 1-16 are pending. Claims 1-13 are rejected. Claims 14-16 are withdrawn due to nonelected (distinct) invention. No claims are allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Nguyen/cnn

cnn

July 1, 2002



Cam Nguyen

Patent Examiner